Claims

I claim:

1. A method for generating a focused image of an object comprising:

   acquiring an image of an object, the image having at least one region;

   performing a fine feature sharpness measurement on the at least one region of the image to provide a sharpness score;

   determining a spatial weighting using the sharpness score; and

   computing a composite image using the at least one region of the image and the spatial weighting.

2. The method of claim 1 wherein the fine feature sharpness measurement is performed on each of a plurality of regions, each such region corresponding to a location on the object.

3. The method of claim 1 wherein the step of computing a composite image comprises a weighted average using the at least one region of the image and the spatial weighting.

4. The method of claim 3 wherein the weighted average is an incremental weighted average.

5. The method of claim 1 wherein the fine feature sharpness measurement further comprises:

   transforming the at least one region of the image so as to provide a plurality of spatial frequencies of the at least one region of the image;

   measuring a density of high spatial frequencies; and

   using the density of high spatial frequencies so as to provide a fine feature sharpness measurement.

6. A method for generating a focused image of an object from an optical imaging system, the method comprising:

providing a plurality of images of the object, each image having a focus setting;

providing at least one image region in at least one image;

measuring a sharpness score of a portion of the at least one image corresponding to the at least one image region;

determining a spatial weighting for the portion of the at least one image using the sharpness score; and

generating a focused image using the portion of the at least one image and the spatial weighting.

7. The method of claim 6 wherein the step of providing at least one image region in at least one image further comprises:

determining a set of focus regions on the surface of the object; and

aligning at least one focus region in at least one image.

8. The method of claim 6 wherein the at least one image region overlaps an adjacent image region using a fuzzy transition.

9. The method of claim 8 wherein the fuzzy transition is a function employing one of the set comprising sigmoid, gaussian and linear.

10. The method of claim 7 wherein the set of focus regions have a fuzzy transition.

11. The method of claim 10 wherein the fuzzy transition is a function employing one of the set comprising sigmoid, gaussian and linear.

12. The method of claim 6 wherein the at least one image region comprises a greyscale image map

13. The method of claim 6 wherein the step of providing a plurality of images further comprises:

determining a coarse focus position.

14. The method of claim 6 wherein the step of providing a plurality of images further comprises:

determining a coarse focus position; and

acquiring a plurality of images at an incremental focus setting.

15. The method of claim 7 wherein the object is a fiber optic cable end face.

16. The method of claim 15 wherein the set of regions are annular.